National Institute of Environmental Health Sciences

A review of climate change, mitigation and adaptation

Author(s): VijayaVenkataRaman S, Iniyan S, Goic R
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Abstract:

Global climate change is a change in the long-term weather patterns that characterize the regions of the world. Scientists state unequivocally that the earth is warming. Natural climate variability alone cannot explain this trend. Human activities, especially the burning of coal and oil, have warmed the earth by dramatically increasing the concentrations of heat-trapping gases in the atmosphere. The more of these gases humans put into the atmosphere, the more the earth will warm in the decades and centuries ahead. The impacts of warming can already be observed in many places, from rising sea levels to melting snow and ice to changing weather patterns. Climate change is already affecting ecosystems, freshwater supplies, and human health. Although climate change cannot be avoided entirely, the most severe impacts of climate change can be avoided by substantially reducing the amount of heat-trapping gases released into the atmosphere. However, the time available for beginning serious action to avoid severe global consequences is growing short. This paper reviews assessing of such climate change impacts on various components of the ecosystem such as air, water, plants, animals and human beings, with special emphasis on economy. The most daunting problem of global warming is also discussed. This paper, further reviews the mitigation measures, with a special focus on carbon sequestration and clean development mechanism (CDM). The importance of synergy between climate change mitigation and adaptation has been discussed. An overview of the relationship between economy and emissions, including Carbon Tax and Emission Trading and the policies are also presented.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Ecosystem Changes, Extreme Weather Event, Food/Water Quality, Food/Water Security, Food/Water Security, Glacier/Snow Melt, Precipitation, Sea Level Rise, Temperature, Unspecified Exposure

Extreme Weather Event: Drought, Flooding, Hurricanes/Cyclones

Food/Water Quality: Pathogen, Other Water Quality Issue

Water Quality (other): Ocean temperature; Ocean acidification; Eutrophication

Food/Water Security: Agricultural Productivity, Food Access/Distribution, Livestock Productivity,

Nutritional Quality

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal, Other Geographical Feature

Other Geographical Feature : Forests

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Infectious Disease, Injury, Mental Health/Stress, Morbidity/Mortality, Respiratory Effect, Other Health Impact

Infectious Disease: Foodborne/Waterborne Disease, General Infectious Disease, Vectorborne Disease

Foodborne/Waterborne Disease: Schistosomiasis, Other Diarrheal Disease

Vectorborne Disease: General Vectorborne, Mosquito-borne Disease

Mosquito-borne Disease: Dengue, Malaria

Mental Health Effect/Stress: Mood Disorder

Other Health Impact: Heat stress

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation, Mitigation

Model/Methodology:

type of model used or methodology development is a focus of resource

Cost/Economic

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified